

REMARKS

Claims 1-8 are all the claims pending in this application. Claims 1-8 have been amended for purposes of clarity, support for which can be found, for example, at page 7, lines 8-9 and lines 20-22 of the present specification.

Applicants respectfully submit that the present application will be in condition for allowance, and entry of the above amendments is respectfully requested.

On pages 1-2 of the Office Action, claims 1 and 3 are rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by Welsh (GB 828 336).

In addition, on pages 2-5 of the Office Action, claim 1-6 are rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Welsh alone, or in view of Magara or Saito.

Also, on pages 5-6 of the Office Action, claims 1-6 are rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Welsh, optionally in view of Magara or Saito, and further in view of Vignaud.

Further, on pages 7-8 of the Office Action, claims 7-8 rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Welsh as discussed above, optionally in view of Magara or Saito, Vignaud, and further in view of Koike.

Basically, the Examiner cites Welsh as teaching a spark discharge process where the sparking may occur in liquids or gases, and the purpose is to supply a powder to the surface of an object to increase its hardness. The Examiner asserts that the powder may come from the consumption of a discharge electrode, which may be formed by compacting from metal powders such as Cr, W or Ta, and a gas or liquid carrier (or in a paste form). The Examiner asserts that the carrier material may be

carbonaceous material, such as wax, grease or mineral oil. *See* page 2, lines 1-64; page 3, line 7-28 and 68-80; and claims 1, 3-8 and 10-11.

In response, Applicants respectfully traverse the rejections for the reason that Welsh, alone or in view of the cited references, does not teach or suggest the green-compact electrode of the present invention.

On page 2, the last four lines from the bottom, the Examiner states that the discharge electrode may be formed by compacting from metal powders and a gas^{or} liquid carrier. The Examiner's position appears to be based on the disclosure at page 2, lines 37-44 of Welsh. Specifically, the Examiner appears to consider the term "which" in the following disclosure as qualifying both "gas^{or} liquid", etc. and "electrode".

The gas or liquid or paste basis above mentioned and at least a portion of the material in an electrode, which may be compacted, or of tube shape, can contribute to the effect which is mainly caused by the additional material of powder form.

However, the term "which" applies to the "electrode" and not to the "gas or liquid or paste" for the following reasons. The disclosure at page 2, lines 17-30 states:

The powder may be carried by a gas supplied to the sparking zone, or by a liquid in which the sparking occurs, or be included in a paste applied to the sparking electrode, or to the work surface, or both. Alternatively, the powder may form part of a sparking electrode which is consumed in the sparking process. Such an electrode may comprise a rod of metal-graphite compact or a tube containing the powder. The gas or liquid or paste basis carrying the powder may be selected to promote desired reactions or inhibit undesirable reactions, or both, in the sparking zone. (underlining added)

Since the term "alternatively" is stated at line 21, Welsh recognized a case in which the powder is mixed with gas and liquid and a case in which the powder is mixed with the electrode to be different concepts.

In addition, the disclosure at lines 24-26 states that "Such an electrode may comprise a rod of metal-graphite compact or a tube containing the powder." This sentence further describes only the electrode. It is noted that the phrase starting with "which" at line 40 on page 2 is very similar to the sentence at lines 24 to 26. Therefore, the clause starting with "which" at line 40 simply defines only the electrode, similar to the sentence at lines 24 to 26.

Further, there is no disclosure in Welsh that the discharge electrode may be formed by compacting from metal powders and a carrier.

Therefore, it is respectfully submitted that the phrase "which maybe compacted" at line 40 at page 2 is describing only the electrode and not the gas or liquid or paste.

In addition, the Examiner takes the following position.

The present claims define that the electrode is formed by mixing working fluid and the metal powder, however, working fluid includes not only liquid but also gas. The electric discharge machining is conducted in not only liquid but also air conventionally, and also the electrode includes air bubbles that contain air. Accordingly, the conventional electrode is formed by mixing air as working fluid with metal powder as in the present invention. Therefore, the present invention is read on by the conventional art and would not be novel.

It is respectfully submitted that the term "working fluid" of the present invention is a liquid (such as kerosene), and Applicants have amended the claims accordingly for purposes of clarity.

In view of the above, it is respectfully submitted that Welsh does not disclose an electrode comprising a mixed material of metal powder and a working liquid having a carbon component, using such electrode, or compression-molding a mixed metal and a working liquid. Therefore, Welsh fails to teach or suggest the present invention and

the secondary references do not make up for the deficiencies of Welsh.

Particularly, Magara does not disclose an electrode containing a working fluid, although the use of a working liquid, such as kerosene is disclosed, and Saito does not disclose an electrode containing a working liquid, although the use of a working fluid containing carbon is disclosed. Therefore, neither reference discloses an electrode formed of a mixture of metal powder and a working liquid.

Accordingly, withdrawal of the foregoing rejection is respectfully requested.

In conclusion, reconsideration and withdrawal of the §102 and §103 rejections are respectfully requested.

If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

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